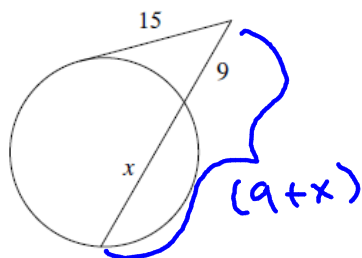


1)



tangent  
&  
secant

$$(9+x)(9) = 15^2$$

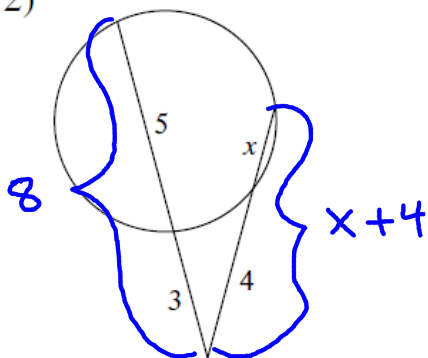
$$81 + 9x = 225$$

$$\begin{array}{r} -81 \\ \hline \end{array}$$

$$\frac{9x}{9} = \frac{144}{9}$$

$$x = 16$$

2)



2 secants

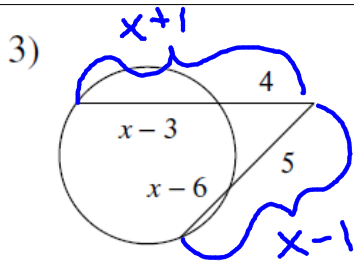
$$(x+4)(4) = (8)(3)$$

$$4x + 16 = 24$$

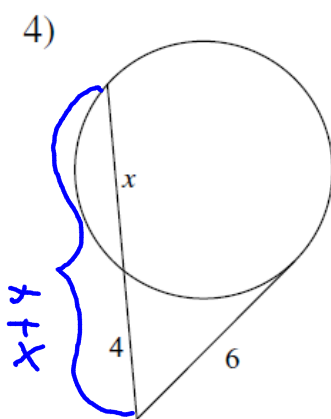
$$\begin{array}{r} -16 \\ \hline \end{array}$$

$$\frac{4x}{4} = \frac{8}{4}$$

$$x = 2$$

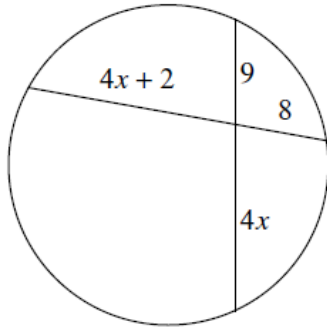


$$\begin{aligned}
 (x+1)(4) &= (x-1)(5) \\
 4x + 4 &= 5x - 5 \\
 +5 &\quad +5 \\
 4x + 9 &= 5x \\
 -4x &\quad -4x \\
 9 &= x
 \end{aligned}$$



$$\begin{aligned}
 (x+4)(4) &= 6^2 \\
 4x + 16 &= 36 \\
 -16 &\quad -16 \\
 4x &= 20 \\
 \frac{4}{4} &\quad \frac{4}{4} \\
 x &= 5
 \end{aligned}$$

5)



$$(9)(4x) = (8)(4x+2)$$

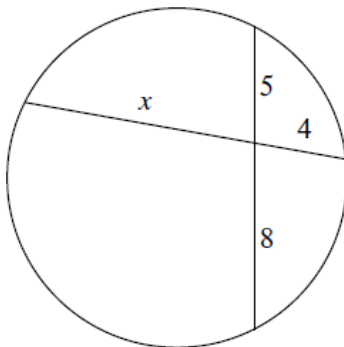
$$36x = 32x + 16$$

$$-32x \quad -32x$$

$$4x = 16$$

$$x = 4$$

6)

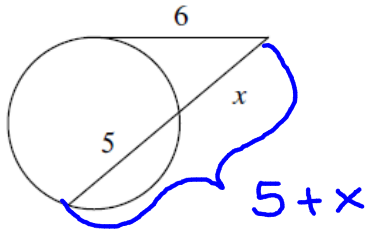


$$(5)(8) = (4)(x)$$

$$40 = 4x$$

$$10 = x$$

7)



$$(5+x)(x) = 6^2$$

$$5x + x^2 = 36$$

$$\quad \quad -36 \quad -36$$

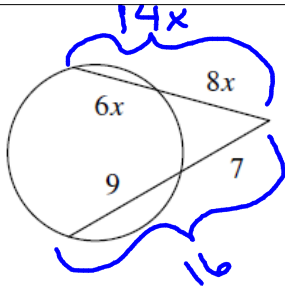
$$x^2 + 5x - 36 = 0$$

|          |                      |
|----------|----------------------|
| $-36$    | $5$                  |
| $mn$     | $m+n$                |
| $-6, +6$ | $0 \quad x$          |
| $-4, 9$  | $5 \quad \checkmark$ |

$$(x-4)(x+9) = 0$$

$$x = \boxed{4}, -9$$

8)



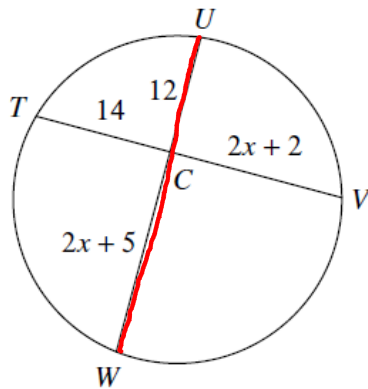
$$(14x)(8x) = (16)(7)$$

$$\frac{112x^2}{112} = \frac{112}{112}$$

$$\sqrt{x^2} = \sqrt{1}$$

$$x = 1$$

9) Find  $UW$



$$(14)(2x+2) = (12)(2x+5)$$

$$28x + 28 = 24x + 60$$

$$\quad \quad -28 \quad \quad -28$$

$$28x = 24x + 32$$

$$-24x \quad -24x$$

$$4x = 32$$

$$x = 8$$

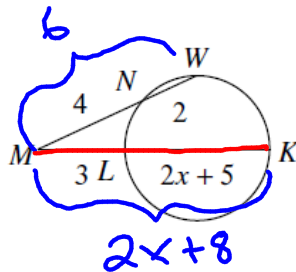
$$UW = 12 + 2x + 5$$

$$UW = 17 + 2x$$

$$UW = 17 + 2(8)$$

$$UW = 33$$

10) Find  $KM$



$$(6)(4) = (2x+8)(3)$$

$$24 = 6x + 24$$

$$-24 \quad \quad -24$$

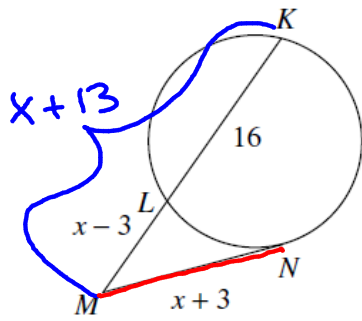
$$0 = 6x$$

$$0 = x$$

$$KM = 2x + 8$$

$$KM = 8$$

11) Find  $NM$



$$NM = x + 3$$

$$NM = 12 + 3 = \boxed{15}$$

$$(x+13)(x-3) = (x+3)(x+3)$$

$$x^2 - 3x + 13x - 39 = x^2 + 3x + 3x + 9$$

$$\cancel{x^2} + 10x - 39 = \cancel{x^2} + 6x + 9$$

$$10x - 39 = 6x + 9$$

$$+39 \quad +39$$

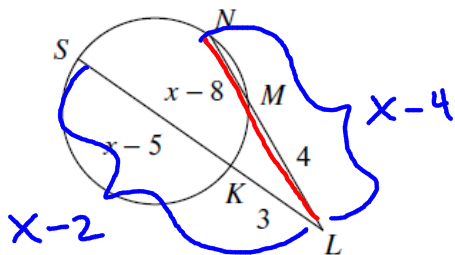
$$10x = 6x + 48$$

$$-6x \quad -6x$$

$$4x = 48$$

$$x = 12$$

12) Find  $NL$



$$(x-4)(4) = (x-2)(3)$$

$$4x - 16 = 3x - 6$$

$$+16 \quad +16$$

$$4x = 3x + 10$$

$$-3x \quad -3x$$

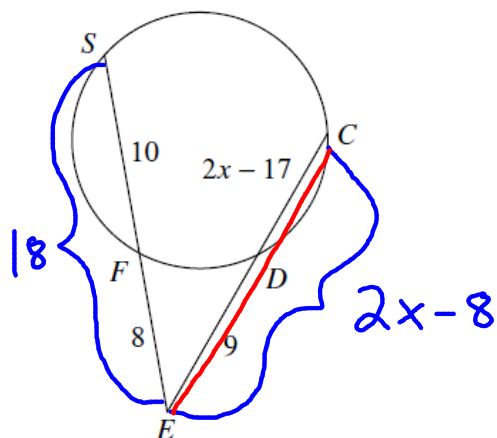
$$x = 10$$

$$NL = x - 4$$

$$NL = 10 - 4$$

$$NL = 6$$

13) Find  $CE$



$$(18)(8) = (2x-8)(9)$$

$$144 = 18x - 72$$

$$+72 \quad +72$$

$$\frac{216}{18} = \frac{18x}{18}$$

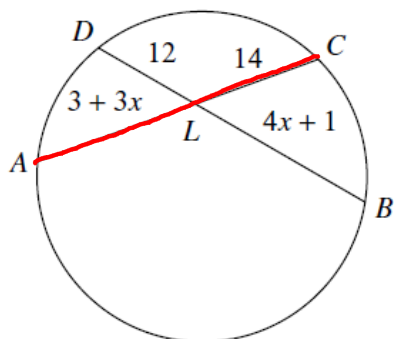
$$12 = x$$

$$CE = 2x - 8$$

$$CE = 2(12) - 8$$

$$CE = 16$$

14) Find  $CA$



$$(14)(3+3x) = (12)(4x+1)$$

$$42 + 42x = 48x + 12$$

$$-12 \quad -12$$

$$30 + 42x = 48x$$

$$-42x \quad -42x$$

$$30 = 6x$$

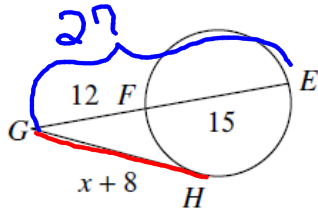
$$5 = x$$

$$CA = 17 + 3x$$

$$CA = 17 + 3(5)$$

$$CA = 32$$

15) Find  $HG$



$$HG = x + 8$$

$$HG = 18$$

$$(27)(12) = (x+8)(x+8)$$

$$324 = x^2 + 8x + 8x + 64$$

$$324 = x^2 + 16x + 64$$

$$-324 \quad -324$$

$$0 = x^2 + 16x - 260$$

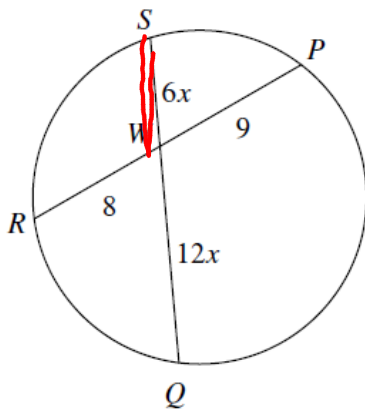
$$\begin{array}{r} -260 \quad 16 \\ mn \quad m+n \end{array}$$

$$26, -10 \quad 16 \checkmark$$

$$0 = (x+26)(x-10)$$

$$x = -26 \text{ or } 10$$

16) Find  $WS$



$$(6x)(12x) = (8)(9)$$

$$\frac{72x^2}{72} = \frac{72}{72}$$

$$x^2 = 1$$

$$x = 1$$

$$WS = 6$$